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Kolbusz, Magdalena A.; Slotboom, Dirk Jan; Lolkema, Juke S.

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Supplementary data for manuscript:

Role of individual positive charges on membrane orientation and activity of transporters of the SMR family

Magdalena A. Kolbusz¹, Dirk-Jan Slotboom² and Juke S. Lolkema^{1*}

Groningen Biomolecular Sciences and Biotechnology Institute

¹ Molecular Microbiology and ² Membrane Enzymology

University of Groningen, The Netherlands

Corresponding author: J.S. Lolkema, Molecular Microbiology, Nijenborgh 7, 9747AG

Groningen, The Netherlands. Tel.: 031 50 363 2155; Fax: 031 50 363 2154 Email:

j.s.lolkema@rug.nl

Name	GFP (a.u.)	SD	nAP (a.u.)	SD	Relative orientation	SD	Expression level	SD
AAVE4701aave								
WT	1.47	0.46	2.00	0.12	1.00	0.45	2.48	0.69
K23M	2.31	0.48	3.37	0.06	1.07	0.41	4.08	0.70
R30G	2.33	0.49	3.91	0.50	1.23	0.50	4.55	0.84
K23M/R30G	2.23	0.09	3.99	0.10	1.31	0.43	4.57	0.37
K23M/R83A	3.00	0.16	0.90	0.03	0.22	0.07	3.14	0.40
R30G/R83A	3.41	0.33	2.40	0.15	0.52	0.18	4.17	0.60
R83A	4.31	0.35	1.51	0.51	0.25	0.12	4.57	0.79
K23M/R30G/R83A	1.62	0.14	0.53	0.03	0.24	0.08	1.71	0.38
EMREecol								
WT	2.47	0.62	4.26	0.74	1.00	0.43	4.93	0.98
K22M	4.05	0.19	3.14	1.33	0.45	0.24	5.13	1.16
R29G	3.49	0.83	3.11	0.18	0.52	0.20	4.67	0.92
K22M/R29G	5.82	0.10	0.18	0.10	0.02	0.01	5.82	0.37
K22M/R82S	4.93	0.07	1.37	0.05	0.16	0.05	5.12	0.30
R29G/R82S	4.49	0.05	0.64	0.02	0.08	0.03	4.53	0.23
K22M/R29G/R82S	2.53	0.07	0.10	0.01	0.02	0.01	2.53	0.27
R82S	4.29	0.09	2.10	0.34	0.28	0.10	4.78	0.59
R106A	1.66	0.03	3.48	0.52	1.22	0.41	3.85	0.72
R82S/R106A	4.24	0.38	4.97	0.42	0.68	0.22	6.53	0.75
K22M/R106A	4.67	0.08	5.16	0.70	0.64	0.18	6.96	0.84
R29G/R106A	4.93	0.15	5.50	0.82	0.65	0.22	7.39	0.91
K22M/R29G/R106A	4.27	0.53	1.99	0.39	0.27	0.10	4.72	0.81
K22M/R82S/R106A	5.47	0.17	3.97	0.48	0.42	0.14	6.76	0.71
R29G/R82S/R106A	4.99	0.22	6.32	0.26	0.73	0.23	8.05	0.59
K22M/R29G/R82S/R106A	3.80	0.05	0.93	0.06	0.14	0.04	3.91	0.29
RRUA0272rrub								
WT	3.01	0.85	3.89	0.41	1.00	0.42	4.92	0.97
K21A	2.17	0.12	1.78	0.17	0.63	0.20	2.80	0.46
R28G	2.27	0.15	0.34	0.13	0.12	0.06	2.29	0.45
K21A/R28G	2.90	0.11	0.08	0.03	0.02	0.01	2.90	0.33
K21A/K86S	1.98	0.02	0.73	0.04	0.28	0.16	2.10	0.21
R28G/K86S	1.75	0.20	0.28	0.04	0.12	0.04	1.77	0.46
K21A/R28G/K86S	1.75	0.04	0.10	0.02	0.04	0.02	1.76	0.22
K86S	2.21	0.12	4.58	0.71	1.60	0.55	5.09	0.85
K86S/R101A	2.05	0.12	4.05	2.56	1.52	1.07	4.54	1.60
R51A	2.44	0.77	4.05	0.18	1.28	0.56	4.73	0.89
K101A	3.06	0.06	4.67	0.52	1.18	0.38	5.59	0.72
R51A/K101A	2.42	0.23	4.09	1.52	1.30	0.87	4.75	1.24
K21A/R28G/R51A/K86S/K101A	1.25	0.02	0.93	0.06	0.57	0.18	1.56	0.26
K21A/R28G/R51A/K86S/K101A 0.1%ara	1.85	0.24	1.45	0.00	0.60	0.20	2.35	0.49
K21A/R28G/R51A/K86S/K101A 0.04%ara	1.87	0.27	1.32	0.17	0.54	0.19	2.29	0.56

Table S1. Values of GFP fluorescence and normalized alkaline phosphatase (nAP) activity measured for wild type proteins and point mutants of AAVE4701aave, EMREecol and RRUA0272rrub; relative orientation and expression level of all the point mutants. SD, standard deviation.